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# **State of Montana**

## **Biennial Report for Information Technology**

# **2009**

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## **Foreword**

The Montana Information Technology Act (MITA) requires the Department of Administration (DOA) to prepare a report each biennium that assesses the state's progress in achieving the goals and initiatives outlined in the state's Information Technology Strategic Plan. MITA also requires the report to contain information regarding the state's information technology (IT) infrastructure including its value, condition, capacity; an inventory of IT equipment, software and services; and an evaluation of IT performance. This document is the fourth biennial IT report and measures our progress against the state's fourth IT strategic plan developed in the spring of 2006.

The focus of the Biennial Report is the executive branch. The legislative branch, judicial branch, and university system are generally excluded since MITA was not designed to cover those organizations.

The background material for this report originated from the following primary sources:

- Expenditure and budget data from the Office of Budget and Program Services and the System Audit Statewide Accounting, Budgeting and Human Resource System (SABHRS).
- Project data assembled by the Information Technology Service Division's (ITSD) Project Management Office.
- The state IT enterprise web survey application. Agency staff used this application to log information on their servers, applications, and progress against their strategic plans.

If you have any questions regarding this data, or the use of information technology within the State of Montana, please contact the Information Technology Services Division of the Department of Administration.

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## **Progress on the State Strategic Plan for Information Technology**

### **Enterprise Systems Services Centers (ESSC)**

***Strategic Plan Goal: Develop IT Resources in an Organized, Deliberative and Cost Effective Manner***

***Strategic Plan Objective: Implement Best Practices***

**Achievement:** The existing Mitchell Building data center is difficult to properly secure, has design issues that make it unsuitable for a data center, lacks the support areas required for a modern data center, and lacks the ability to expand to accommodate additional devices in an efficient manner. The Helena ESSC is designed to address all of these issues.

The 2007 Special Legislative Session provided \$14.5 million funding to construct a facility to replace inadequate existing facilities in the Mitchell Building and to construct a second data center in Eastern Montana to provide redundant support for critical state systems. Funding consists of \$10.5 million of General Fund and \$4 million of Capitol Land Grant funds.

The design process was completed in September of 2008. General contractor bids were received in late October and bids were awarded by November 10, 2008. Construction completion is expected in December 2009. At that point, the state will begin the installation of IT equipment in preparation for occupying the Helena ESSC. Occupancy of the Miles City ESSC will begin shortly thereafter.

The State of Montana spends nearly \$600,000 annually for its disaster recovery contracted services and practice exercises. A primary focus for the Miles City ESSC is to provide a *near non-stop* processing environment for critical state systems and to provide operational benefit during normal conditions. While contracted disaster recovery services may not be totally eliminated, the scale of contracts will be significantly reduced and those funds used to reduce the ESSC costs. In addition, the state avoids the costs associated with delayed restoration of critical services.

The Miles City ESSC is geographically remote from Helena to ensure that natural disaster risk factors are isolated so that a single event reduced risk of affecting both ESSC sites. The two sites also offer the ability to avoid disruptions in critical systems operations when maintenance activities are performed.

### **Network Expansion Project (HB 4)**

***Strategic Plan Goal: Create Quality Jobs and a Favorable Business Climate***

***Strategic Plan Objective: Expand Montana's SummitNet Network***

**Achievement:** The Department of Administration, Information Technology Services Division (ITSD) is responsible by statute (2-17-512 (m) (n) (o) MCA) for the acquisition and operation of the state's voice, video, and data network. SummitNet<sup>1</sup> connects more than 500 state offices and university campuses located in 145 communities throughout the state. Bandwidth requirements have not kept pace with user demand as the state's applications and business requirements have changed from a transaction based processing to a web based technology. More than 51% of current circuits are at risk of failure due to exceeding available capacity. Current and future

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<sup>1</sup> Summit Net II is the integrated voice, data, and video network used by government agencies, University System, libraries, local governments, and K-12 educational institutions.

demand for new services, such as video conferencing to reduce travel costs and energy use, are putting more demand on network services.

The purpose of the Network Expansion Project is to upgrade bandwidth at offices throughout the state, upgrade the state's Internet portals, provide network management tools to better manage use and reliability, increase fiber capacity within the capitol complex, and establish a non-state security zone to separate users based on differing security policies and practices.

A Request for Proposal (RFP) for statewide network services was released September 28, 2008 in accordance with HB-4 requirements to obtain services pursuant to Title 18, Chapter 4. Bresnan Communications and Qwest Communications were the only two companies that submitted responses to the state's request. Both bid responses exceeded current level budget expectations to replace and upgrade circuits at all sites throughout the state. Based on the results of the RFP, the evaluation team recommended that the state enter into a contract with Bresnan Communications, but reserved the right to enter into multiple agreements based on the best interests of the state. Discussions are underway with Qwest Communications on a second contract.

During the 2007 Legislative session, ITSD projected 94 office sites/campus locations would be upgraded. We expect to upgrade 98 sites. Site upgrades are based on current use trends, elimination of duplicate circuits to support video requirements, and agency business needs.

ITSD, in coordination with other agencies, continues to work with the telecommunications companies to improve the level of services at all sites throughout the state through the deployment of broadband services. The Strategic Network Plan is continually reviewed and updated based on agency needs and service provider capabilities to support citizen access to government services and the business needs of the state.

### **ITSD Rates**

***Strategic Plan Goal: Develop IT Resources in an Organized, Deliberative and Cost Effective Manner***

***Strategic Plan Objective: Provide Stable Funding***

**Achievement:** During the last legislative session, ITSD promised the appropriations subcommittee that it would look into being able to better describe and justify its rates and rate methodology. ITSD realized that there was a need for better documentation and justification of rates for not only the legislature, but also the Office of Budget and Program Planning and agencies.

ITSD purchased a rate planning resource called the Full-Cost Maturity Model (FMM), an activity based budgeting model. The goal in using this planning resource is to assure maximum benefit from IT investment while meeting agency requirements. To do this, we will publish a products and services catalog, along with their true costs. Zero based budgets identify actual costs, not just a percentage based on previous years, and agency needs. Agencies will decide which services they will use and will forecast their projected utilization. This allows everyone to understand what budget/rates pay for and what is included. Allocations will be driven by consumption of product sets, and will be understandable and fair. This model is customer focused and improves client relationships through defensible, transparent, and fair chargeback rates. This is a maturing model. While rates are not perfect, this represents a new way of thinking for ITSD and agencies.

Rates for FY10/11 are based on this model. Over the past year we have defined over 260 services, allocated costs and staff time to each service, and estimated units of service provided to each agency. Rates are based on a detailed allocation of expenditures and staff time to each service. FMM is a maturing model and will become more accurate after we have a full year's utilization available (FY10). This first iteration was based on many assumptions and estimations.



## **Montana High Performance Computer Center (HPC)**

***Strategic Plan Goal: Develop IT Resources in an Organized, Deliberative and Cost Effective Manner***

***Strategic Plan Objective: Implement New Technologies***

**Achievement:** The 2007 legislative session produced an economic development proposal for Butte through the establishment of a supercomputer center. The executive recommendation for the Long Range Building program (LRBP) included a Supercomputer Challenge Grant for Butte. HB4 appropriated \$259,000 in FY2008 for a challenge grant with the potential of an additional \$7M commitment provided a successful business plan was developed and approved.

The primary objective of the HPC is economic development across Montana by providing an affordable, on-demand tool that is essential in certain high-tech research and analysis used across multiple private industries and academia.

The marketing non-profit organization, the city of Butte, economic development organizations, state agencies, Montana Tech, private companies, and other stakeholders are negotiating roles and responsibilities, financial commitments, and contractual relationships. There is an immediate startup-funding requirement for marketing, facilities and staff. The first revenues from HPC operations will not come in for many months. Several of the stakeholders look to ITSD to bridge the gap; however, ITSD has no available staffing or funding to assist the HPC.

The HPC has the backing of Montana's Senators, the Department of Commerce, Montana Tech, IBM, National Center for Healthcare Informatics, Montana Economic Revitalization and Development Institute, Butte Local Development Corporation, DOA/ITSD and the Office of the Commissioner of Higher Education.

Sponsors and advocates are pursuing initial funding for marketing, staff, and facilities to bridge the gap until operational revenues are received. We need to conclude negotiations on organizational roles and responsibilities, financial commitments, and contractual relationships. Additionally, we need to develop contracts and legal agreements to define inter-organizational responsibilities.

## **Information Systems Security Policy and Standards**

***Strategic Plan Goal: Protect Individual Privacy and the Privacy of Information Contained Within IT Systems***

***Strategic Plan Objective: Improve Enterprise Security and Identity Management***

**Achievement:** Under 2-17-534, MCA, the Department of Administration is responsible for providing centralized management and coordination of state policies for security of data and information technology resources. Under 2-15-114, MCA, each department head is responsible for ensuring an adequate level of security for all data within the department.

In addition, the Enterprise IT Management audit (05DP06), published in October 2005, identified the need to implement the provisions of the Montana Information Technology Act (MITA) in policies and standards. Pursuant to those requirements, the Director, Department of Administration, has delegated the authority to publish statewide information technology policies and standards to the Chief Information Officer (CIO) for the state of Montana. The CIO assigned FTE resources to draft security-related policies and standards.

In January 2008, the CIO authorized the use of the Federal Information Security Management Act (FISMA) and the National Institute of Standards and Technology (NIST) security framework and guidance as the basis for information system-related security policies and standards. Use of the NIST framework leverages the federal government investment, which is pre-built and being deployed nationwide. FISMA/NIST provides common practices based on international and national standards. Leveraging these common practices puts the state in alignment with federal benefactors rather than at opposition, thereby reducing the risk associated with misaligned missions. The holistic and comprehensive approach of FISMA/NIST integrates with enterprise architecture deployment and information technology governance.

The FISMA/NIST solution was developed for our government culture; it supports how we do business within the state. It provides diversified, distributed, and delegated governance and reflects the state's governance structure. By aligning with federal (and other) partners, the risk of jeopardizing the flow of external funding is reduced. The federal government is moving forward with amending FISMA to include extending security-related procurement requirements to external entities, such as the state.

Security policy instruments are currently being drafted through the adoption of the FISMA/NIST information systems security framework and guidance documents. Implementation of the FISMA/NIST-based policy instruments will be prototyped within ITSD as the basis of security policies and standards supporting ITSD's service offerings. Policies and standards shall be published statewide on order of the CIO. State agencies, the Information Technology Managers Council, and ITB will work together to determine how to go forward with implementing security standards for the state IT enterprise.

### **Enterprise Architecture**

***Strategic Plan Goal: Develop It Resources in an Organized, Deliberative and Cost-effective Manner***

***Strategic Plan Objective: Implement Best Practices***

**Achievement:** Enterprise Architecture<sup>2</sup> (EA) is an internationally and nationally used model for best practices. This model is used at the federal, state, and local levels of government. The state Information Technology Board (ITB) has endorsed the EA concept for Montana's IT enterprise. The federal government has adopted the EA model, and we want to align ourselves with this model so that we do not jeopardize federal funding. By using this model we demonstrate that we are wise investors of state dollars. Additionally, we simplify the purchasing or contracting process and we increase efficiency and effectiveness of service delivery.

Historically, the investment in software that supports the State of Montana IT infrastructure has been centered on picking products that are determined to best fit the immediate need. Little thought was given to selecting the "standards" that best support those same requirements. The paradigm switch from *products* based solutions to *standards* based solutions better aligns the state to leverage technology to boost the effectiveness and efficiency of service delivery and to maximize the coordination of these technology investments. Picking the least expensive product from a list of products that support a given standard could result in significant software cost savings, while protecting the state from a product that has come to the end of its software life cycle. Replacing a dead-end product should be much easier and less expensive than switching to a new standard. This paradigm switch better positions the state to align with federal, state and local

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<sup>2</sup> **Enterprise Architecture** is the organizing logic for business processes and IT infrastructure reflecting the integration of standardization requirements of the firm's operating model.

government standards-based IT architectures to drive greater cost reductions and provide better service to citizens.

In order to move to an EA paradigm, we intend to document the Department of Administration IT Enterprise Architecture Infrastructure Domains relative to platform, application, and network technologies. We also intend to clearly define the IT standards, guidelines, principles, and best practices for each domain, and adopt IT standards to better align with federal, state, and local governments. The EA documentation will serve as a baseline to provide oversight evaluations of new technologies and initiatives.

### **eGovernment Services Initiative**

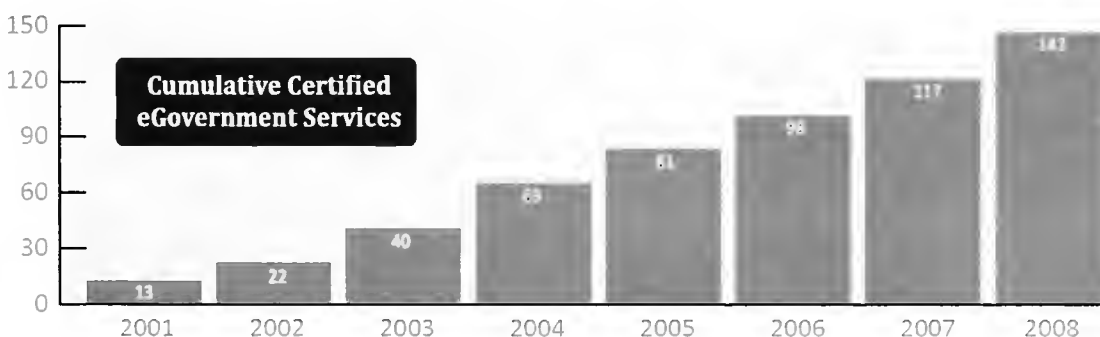
*Strategic Plan Goal: Improve government Services*

*Strategic Plan Objective: Expand eGovernment Services*

**Achievement:** The State of Montana's electronic government (eGovernment) services initiative started in 2000. The state made the decision to outsource eGovernment service development and enter into a self-funded portal model.<sup>3</sup> Under this model, development, maintenance, and support activities for eGovernment services are supported through convenience fees assessed on a small percentage of services. The self-funded electronic government services contract is currently held by Montana Interactive, LLC, a wholly owned subsidiary of NIC, Inc. NIC holds state contracts similar to Montana's in 21 states and many counties. This contract expires January 2011. There is a 14 member statutorily created advisory council, called the Electronic Government Advisory Council, which provides oversight advice to the Department of Administration regarding the eGovernment initiative and contract.

We will poll the agencies in mid-2009 regarding their desire to either continue or discontinue the eGovernment Services contract. If the agencies request that we continue with the contract, a cross-agency team will be assembled to assist with the RFP process to enter into a new contract.

The cumulative number of Montana state eGovernment services provided since 2001 is depicted in the following graph:



*Figure 1 illustrates the yearly cumulative number of certified eGovernment services provided since 2001.*

<sup>3</sup> A self-funded portal uses a non-traditional funding method that is supported by convenience fees paid on select eGovernment services. It is considered an enterprise funding model in that all fees go into one fund (the transaction fund) and that fund supports the expenses of all eGovernment services regardless of the agency providing the service.

The Montana state eGovernment services adoption rate is depicted in the following graph:

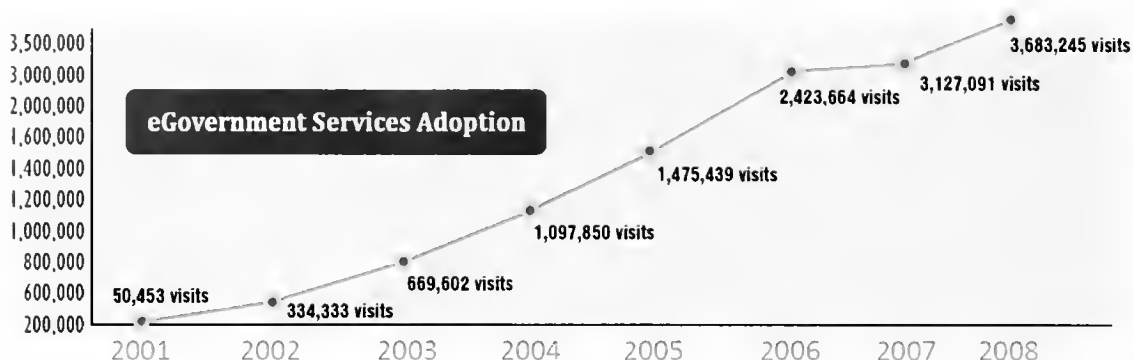


Figure 2 illustrates the yearly number of visits to Montana state eGovernment sites

### OpenOffice Suite

*Strategic Plan Goal: Develop IT Resources in an Organized, Deliberative and Cost Effective Manner*

*Strategic Plan Goal: Implement New Technologies*

**Achievement:** The Information Technology Managers Council (ITMC) recently requested that the OpenOffice<sup>4</sup> Suite software be designated a Non-Supported Product within the State of Montana Enterprise environment. The OpenOffice team, formed by ITMC, also recommended that the state approve this request.

The state standard software product is Microsoft Office. A number of agencies have situations where basic office automation capability is required, but the cost of Microsoft Office or paying the desktop rate for each employee may be prohibitive. Allowing for the limited use of OpenOffice in the state computing environment provides agencies with a cost-effective alternative to Microsoft Office. OpenOffice is a low-cost, very capable solution for these situations. Agencies will have to analyze needs and capabilities along with support requirements for this product.

The OpenOffice team compiled documents detailing its research and experience with this product that is available to agencies to assist in their own analysis. A number of agencies have done extensive testing with the product and would qualify as subject matter experts. Staff from Fish Wildlife and Parks, Legislature, Lewis & Clark County/City of Helena, and Corrections can provide technical feedback.

The state Chief Information Officer (CIO) has approved this product request with the stipulation that agencies choosing to implement Open Office will be wholly responsible for its maintenance and support.

### Interoperability Montana

*Strategic Plan Goal: Improve the Quality of Life of Montana Citizens*

*Strategic Plan Objective: Improve Public Safety Communications*

**Achievement:** The vision for Interoperability Montana (IM) is to create a single, interoperable communication system with the capability of seamlessly connecting local, tribal, state, federal, and international public safety responders with essential voice and data needs, protecting citizens.

<sup>4</sup> **OpenOffice** is a free cross-platform application suite that supports the ISO/IEC standard OpenDocument Format (ODF) for data interchange.

visitors, and property, and enhancing United States border security. Montana is investing in the IM project to ensure reliable communications during emergencies. This improves the ability to protect citizens, and local, tribal, state, federal and international resources. Interoperable public safety communications is a significant concern in Montana and across the United States. Incidents such as the 9/11 attacks, major hurricanes, and other natural and manmade emergencies highlight this fact.

Montana is addressing these challenges with the policy-level Statewide Interoperability Executive Council (SIEC) and a locally-led, operational governing board known as the Interoperability Montana Project Directors (IMPD). The IMPD is a grassroots partnership of local, tribal, state, and federal government agencies and has the primary responsibility for development and execution of the strategy to implement IM as defined by the SIEC. Nine consortia in the state represent counties and seven Tribal Nations. In addition to the nine consortia project directors, three state agencies have voting positions on the IMPD and several federal agencies sit as non-voting representatives.

With over 1,400 users having already converted to a P25<sup>5</sup> trunked/hybrid configuration, Montana is well on its way to improving the reliability of radio transmission sites, developing trunked radio coverage for use by partners, developing a digital microwave system to connect sites, and providing backbone infrastructure to allow for the future expansion of technologies such as mobile data, remote sensing, and data transmission for public entities. Over \$30 million dollars in state, federal, and local funding is currently invested in the project (including over \$12 Million in State of Montana funds). Current funding allows for approximately 40% construction of key infrastructure and radio coverage.

The IM project has developed a long-term deployment strategy and sustainability plan to expand this system statewide. The success of this project will open up numerous voice and data opportunities for public safety jurisdictions across the state of Montana and along the northern border. At the border, improved communications and cooperation between Customs and Border Protection, state of Montana agencies, local responders and international partners is possible.

### **Wireless 9-1-1**

***Strategic Plan Goal: Improve the Quality of Life of Montana Citizens***

***Strategic Plan Objective: Improve Public Safety Communications***

**Achievement:** HB27 in the 2007 Legislative session increased the 9-1-1 surcharge (\$.50 for basic and enhanced 9-1-1) to \$1.00. The additional \$.50 will be for wireless 9-1-1. The increase was evenly divided and deposited in a fund for the Public Safety Answering Points (PSAPs) and the wireless carriers. The wireless carriers will invoice the state 9-1-1 Program for their costs. This process allows the state to determine if costs are allowable. Managing the process at the state level eliminates the need for each PSAP to receive bills from the carriers. In addition, this process provides assurances that as towers that serve multiple 9-1-1 jurisdictions and counties are upgraded the cost is only paid once. The total wireless revenue collected for FY08 was \$6,500,000.

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<sup>5</sup> **Project 25 (P25)** refers to a suite of standards for digital radio communications used by federal, state/province and local public safety agencies in North America to enable them to communicate with other agencies and mutual aid response teams in emergencies

## **Workforce Development**

***Strategic Plan Goal: Develop IT Resources in an Organized, Deliberative, and Cost Effective Manner***

***Strategic Plan Objective: Implement Workforce Development Plan***

**Achievement:** Hiring and retaining talented people for IT positions throughout the State of Montana are critical issues as current employees begin to retire. Only 3.5% of the technical workforce in the state are under the age of 30 while almost 50% are over the age of 50. Replacing people who leave requires careful attention to all aspects of the employee life cycle, including hiring and selection, training and development, evaluating performance, and retaining critical employees.

Workforce development focuses on all aspects of the employee life cycle from selection and hiring through termination of employment. As part of a long-range plan for workforce development, the state is developing best practice processes. These processes include hiring and selection, on-boarding new employees, career ladder development, matching performance appraisal goals to division objectives, providing employee career development opportunities, employee retention, and managing employee transitions (e.g. moving to new employment opportunities or retirement).

Efforts to introduce workforce development processes across state government include presentations to managers and all attendees of the annual State IT conference, the Secretary of State's IT conference, the State Human Resource Conference, and at the State Personnel Network.

Initiatives and projects in development include succession planning, developing career ladders, developing a revised performance appraisal process (to be piloted in the State Human Resource Division), and performing surveys of hiring managers and recently hired employees to determine the effectiveness of the hiring processes. The talent manager<sup>6</sup> in the State Human Resources Division became a certified Human Capital Strategist on December 31, 2008. In addition, the State Human Resource Division is hiring a second Talent Management position to ensure talent management projects receive consistent attention and focus.

A position has been established in the State Human Resources Division with the intention to use these efforts as a model for all agencies. Career plans will be developed, hiring and selection processes will be improved, performance appraisal processes will be tied to division and department goals, and a careful exit interviewing process will be initiated.

## **Teleworking**

***Strategic Plan Goal: Develop IT Resources in an Organized, Deliberative and Cost Effective Manner***

***Strategic Plan Objective: Implement Workforce Development Plan***

**Achievement:** The 2007 legislature encouraged teleworking as part of an overall strategy for workforce development and for reducing state government costs. The goal of teleworking is to reduce the cost of state government office facilities. Furthermore, it is consistent with the Governor's "20x10" initiative to reduce state government energy requirements 20 percent by the year 2010. Current economic conditions make teleworking an attractive alternative for many employees.

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<sup>6</sup> The talent manager's function is to manage the selection, hiring, and retention process to ensure the right employee is in the right job at the right time.

A process is necessary to ensure equitable treatment of all employees in the division with regard to teleworking and teleworking opportunities. However, details and questions still remain about how to best manage teleworking for the division. To assist in this regard, we will review and discuss teleworking procedures and policies from the Department of Administration, other agencies, the federal government, and private sector employers.

We intend to evaluate job classes for teleworking potential. The nature of some positions may prohibit teleworking. If the position can support teleworking, the criteria in existing DOA procedures for determining employee eligibility are sufficient. ITSD will use the existing DOA teleworking procedures without requiring supervisors to verify the safety of the teleworking site. Teleworking in ITSD will be accomplished using existing Citrix external access method.<sup>7</sup> Each executive area may allow one employee to begin teleworking for one to two days per week. Each area will review the work results to determine if other employees could or should be allowed to telework.

The teleworking issue will be reviewed again early in 2009.

### **Mitchell Building Power Upgrade**

***Strategic Plan Goal: Improve Government Services***

***Strategic Plan Objective: Continuity and Disaster Recovery Planning***

**Achievement:** In the spring and summer of 2006, the state enterprise experienced a number of unexplained service interruptions. ITSD contracted with Morrison-Maierle, Inc to perform a power assessment study. Their initial assessment in September 2006 recommended making significant grounding changes, replacing an aging and questionable step up transformer, and implementing additional backup power equipment. ITSD evaluated the options and determined it was best to wait until after the 2007 Legislature to avoid potential outages while legislators were in session.

Other events occurred following the assessment report which required ITSD to expand the scope of the study. Design 3 Engineering, the Engineering firm on the Mitchell Building heating, ventilation, and air conditioning (HVAC) project, identified electrical problems resulting from building conduit and components in the building being grounded incorrectly.<sup>8</sup> It was also determined that ITSD was exceeding capacity on our existing power structure, having grown from 35% to 85% load on the existing 225 KVA Uninterruptable Power Source (UPS) system in three years. The normal industry limit is not to exceed 80% under normal loading operations.

ITSD has installed a new UPS to provide the additional capacity and redundancy. Additionally, a 400 KVA autotransformer and 400 KVA Power Distribution Unit (Computer Power Center) in the computer room were installed to provide a redundant path for the existing 400 KVA step-up transformer.

We have taken several actions that provide significant improvements. We have increased reliability by providing multiple transformers to allow a single transformer failure to be bypassed. We have replaced old equipment which has experienced failures or is nearing end of life where the probability of equipment failures rise steeply. We have also added redundant UPS units to act as alternated power sources if power source fail or a primary UPS unit stops working.

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<sup>7</sup> Citrix software and services are used to operate a Virtual Private Network that allows for secure remote access over a network and the internet.

<sup>8</sup> Conduit and components in the building were grounded through structural steel.

When construction of the Helena and Eastern Montana ESSCs is complete, all IT equipment and power system upgrades will be transferred to the ESSC in Helena or Miles City for reutilization. Power consumption in the Mitchell Building will be reduced before the 20x10 initiative deadline.

### **Remote Tape Operations**

***Strategic Plan Goal: Develop IT Resources in an Organized, Deliberative and Cost Effective Manner***

***Strategic Plan Objective: Implement Best Practices***

**Achievement:** Magnetic tapes used for retention of IT data can become unusable after a period of time because of environmental problems. Best practices prescribe that tapes containing valuable information be backed-up and stored at an offsite location. This is a technique used by businesses and governments throughout the country for protecting IT magnetic tapes. Since the mid 80's, ITSD has had an arrangement with the Secretary of State's Records Management Bureau (RMB) for offsite storage of disaster recovery backup tapes.<sup>9</sup> This arrangement has served as a cornerstone of our disaster recovery efforts. Under this arrangement, we were creating backup tapes at the Mitchell Building and engaging RMB personnel to transport them by truck to their disaster recovery vault. RMB employees had faithfully transported tapes from the ITSD computer room to the RMB vault twice daily, seven days per week, for years. Neither the van nor the vault has environmental controls that are desirable for transporting and storing the backup tapes.

Early in FY08 ITSD developed a plan to relocate all tape processing equipment used in day-to-day operation out of the ITSD computer room in the Mitchell Building. Tape processing equipment would be moved to a secure, environmentally controlled facility. The intention was for the new facility to become a disaster recovery vault, connected to the existing computer room with high speed communications channels. Under this plan, the tape backup storage arrangement with RMB would no longer be necessary.

A lease was secured with the Minneapolis Federal Reserve Bank early in FY09 for approximately 2000 square feet of computer room raised floor space. This space is located within the Bank in Helena, at the corner of Neil and Front streets. The building and grounds are under armed surveillance 24 hours a day. It was built with the likelihood of seismic activity in mind. Both uninterruptible power supply and emergency generators provide continuous electrical power.

During the weekend of November 8-10, 2008, ITSD's IBM 3494 Automated Tape Library/Virtual Tape System (ATL/VTs) was moved to the Bank. Remote operation of the ATL/VTs within the new vault facility commenced November 11, 2008.

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<sup>9</sup> In information technology, backup refers to making copies of data so that these additional copies may be used to restore the original after a data loss event.



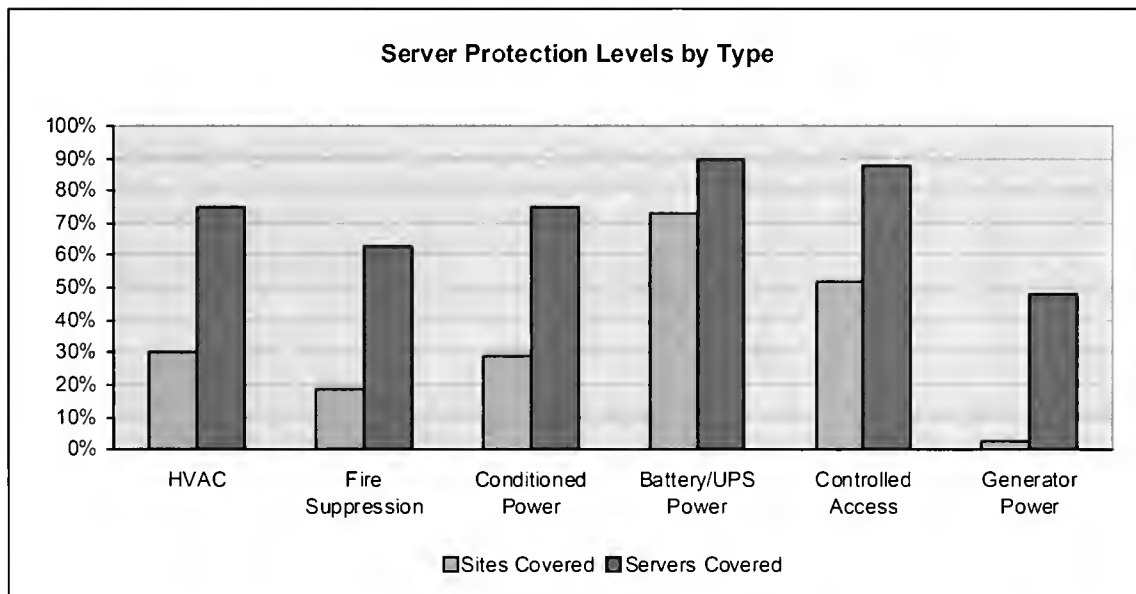
## Status of the Information Technology Infrastructure

The state IT enterprise maintains a web-based application that allows agencies to input data relative to the status of their IT inventory. Agencies are required to maintain current information in the database, making entries as changes occur and performing annual updates as requested by ITSD. The following section of this report reflects an analysis of that data as reported by the agencies. More detailed information can be obtained by contacting ITSD.

### Data Centers

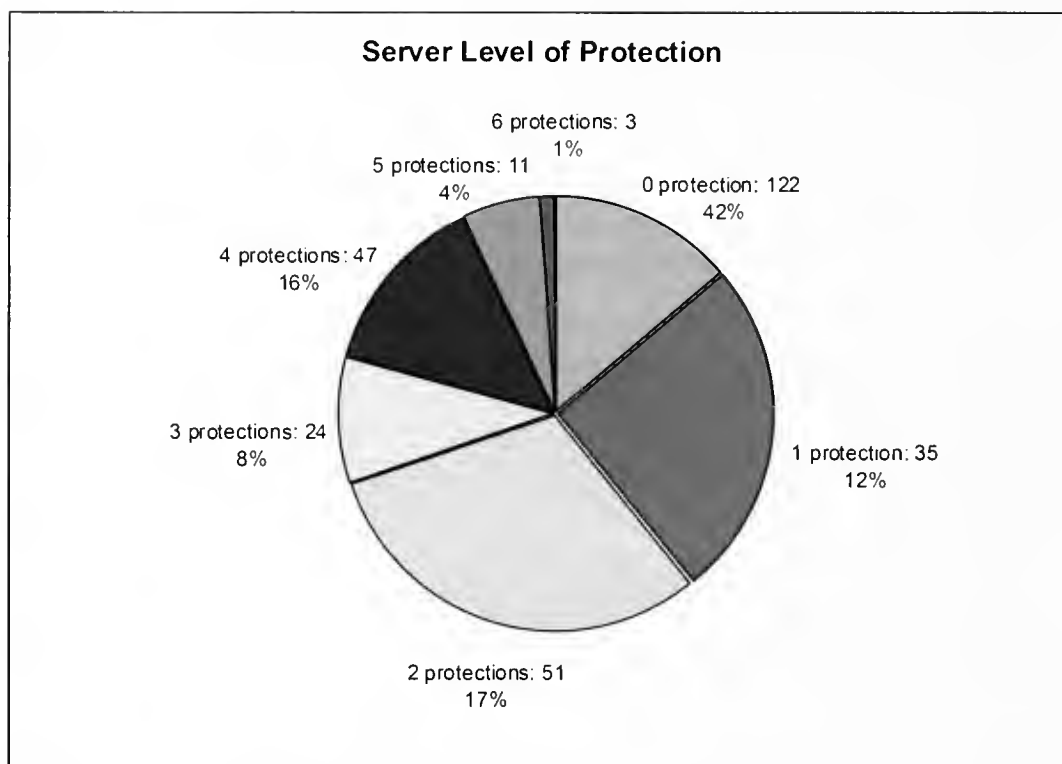
There are 288 sites throughout the state housing 1,234 physical servers, which store and run the state's software applications. ITSD is only responsible for two of these sites, the Mitchell Building and the old Federal Reserve Bank. Due to their critical nature, data centers are typically designed to have special environmental protections in place. The typical protections include:

- HVAC (heating, ventilation, air-conditioning)
- Fire suppression systems
- Conditioned power source to eliminate voltage drops and peaks
- Battery backup for power during temporary outages
- Local/controlled access
- Generators for alternate power source over extended periods



*Figure 3 illustrates the percentage of servers and sites covered by the typical protective systems.*

There is a great disparity among the levels of protection installed for the state agencies' data centers. The larger agency data centers typically have most of the standard protective systems listed above; however, many of the smaller agency data centers have few or none of the critical protective systems in place.



*Figure 4 illustrates the level of protection for state server sites.*

While only three sites (*DOJ at Fort Harrison, MDT, and the ITSD data center in the Mitchell Building*) have all six levels of protection, 518 or 42 percent of the state's servers are located at those three locations. There are 879 or 71 percent of the state's servers located in sites with four or more protections. A total of 117 or 9 percent of servers are in isolated locations that have one or no protection. There has been a significant improvement in this area during the past two years.

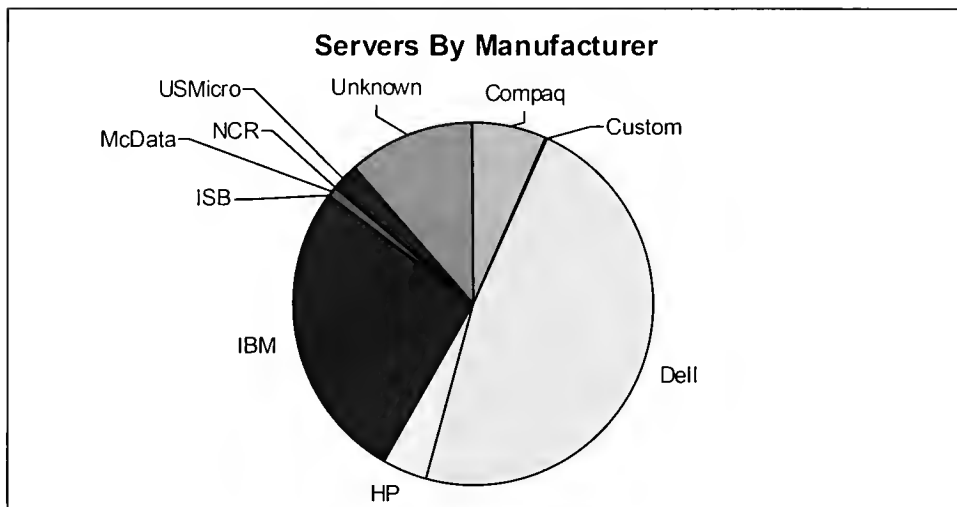
### **Servers**

By definition, a server is a multi-user computer that provides a specific type of service to client software running on other computers – usually PCs. For our purpose, the term server refers to a physical or virtual<sup>10</sup> computer on which server software is running. A single server may have many applications running on it; therefore, the server may provide many different services to many different users on the network. Servers in this report include everything from a large mainframe down through mid-tier size servers and include large desktop computers if they are operating as servers.

The state has 1,234 physical servers in operation, some hosting an additional 393 virtual servers for a total of 1,627 physical and virtual servers. With appropriate software, dozens of virtual servers may reside on a single physical server. Seven state agencies; DOC, DOJ, FWP, GOV, ITSD, and STF, use this technique to reduce the number of physical servers, simplify management, and minimize software-licensing cost.

There are 81 servers dedicated to running Storage Area Networks (SANs) for the purpose of backing up and storing large amounts of critical data. Thirteen agencies are currently employing SANs: COR, DEQ, DLI, DOC, FWP, GOV, ITSD, LEG, MDT, MSL, OPI, SOS, and STF.

<sup>10</sup> A virtual server is a method of partitioning a physical server computer into multiple servers so that each has the appearance and capabilities of running as its own dedicated machine.

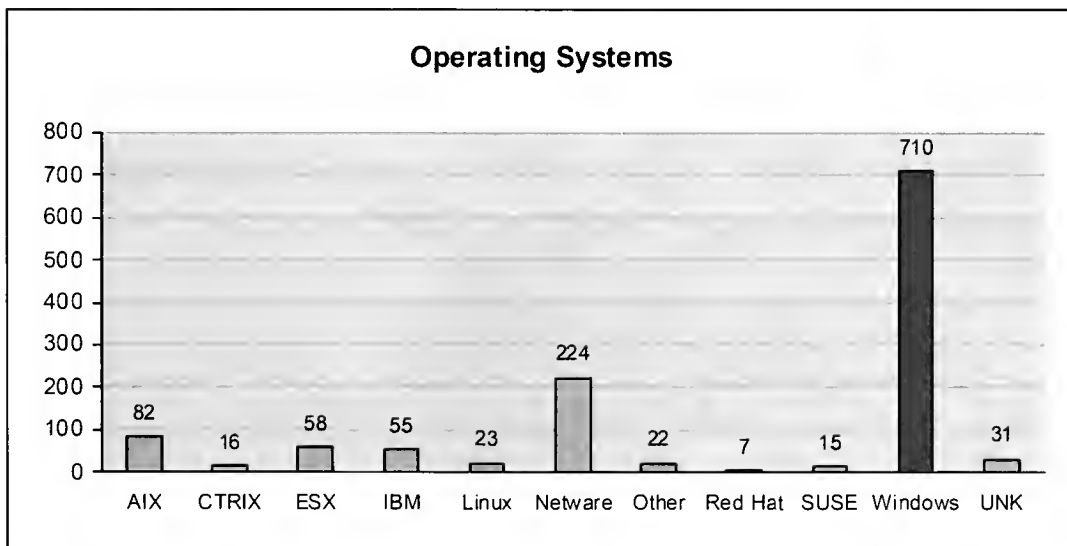


*Figure 5 illustrates servers by manufacturer.*

Dell and IBM make up the largest portion of the state's servers, about 74 percent. With the merger of Compaq and Hewlett-Packard (HP) 10 percent of the state's servers are supported by HP.

### Operating Systems

Operating systems control the other application software running on the server. Presently, Windows is the predominant server operating system within the enterprise landscape. There are seventeen separate versions of operating systems currently in use throughout the state. This diversity contributes to the complexity associated with providing support and planning future growth strategies while maintaining the enterprise infrastructure.



*Figure 6 illustrates the server operating system by type.*

## Age

Of the 1,234 physical servers identified within the survey, 80 percent are four years old or newer. Most hardware vendors commit to five years of parts availability for servers; therefore, five years is the reasonable upper limit for the life of a deployed server.

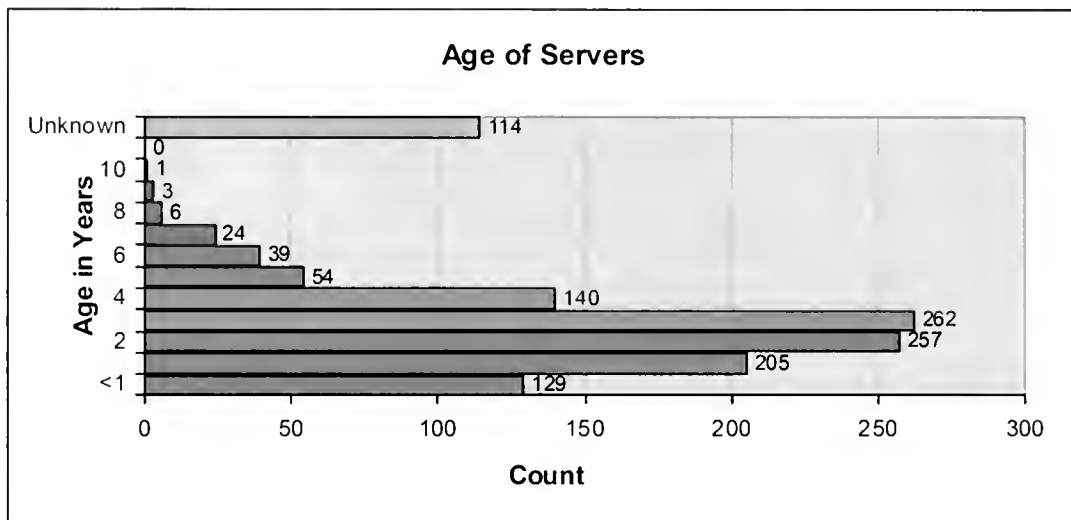


Figure 7 illustrates the age distribution of servers identified within the agency.

## Applications

Software applications carry out a wide variety of functions performed by agencies within state government. These functions support internal, state-related business processes as well as external, public-related business transactions. The survey data does not reflect single-user applications.

The state's applications are divided into three major categories; *commercially* available and procured, *custom* built, and *database* (data storage) applications. Only 13 percent of the applications used by the State of Montana are commercially available products. Approximately 31 percent are custom built to meet the unique needs of the state, or because a commercial application was not available.

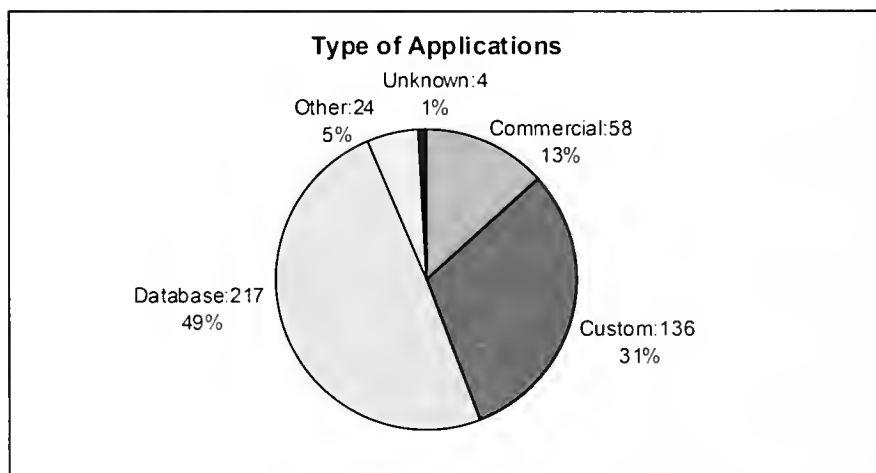
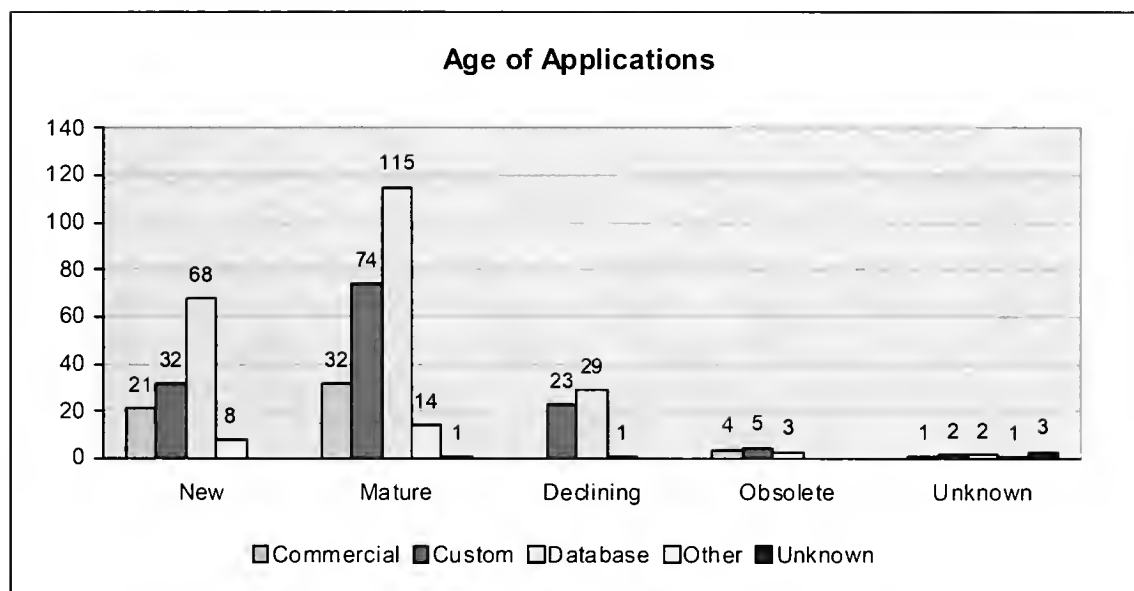


Figure 8 illustrates the breakdown of the state's major applications by type.

Applications were rated by the agencies to determine their relative age, ranging from new to obsolete for current purposes. A total of 65 applications are currently classified as *declining* in age or obsolete, 28 of which are custom applications that need to be upgraded or replaced in the near to immediate future.

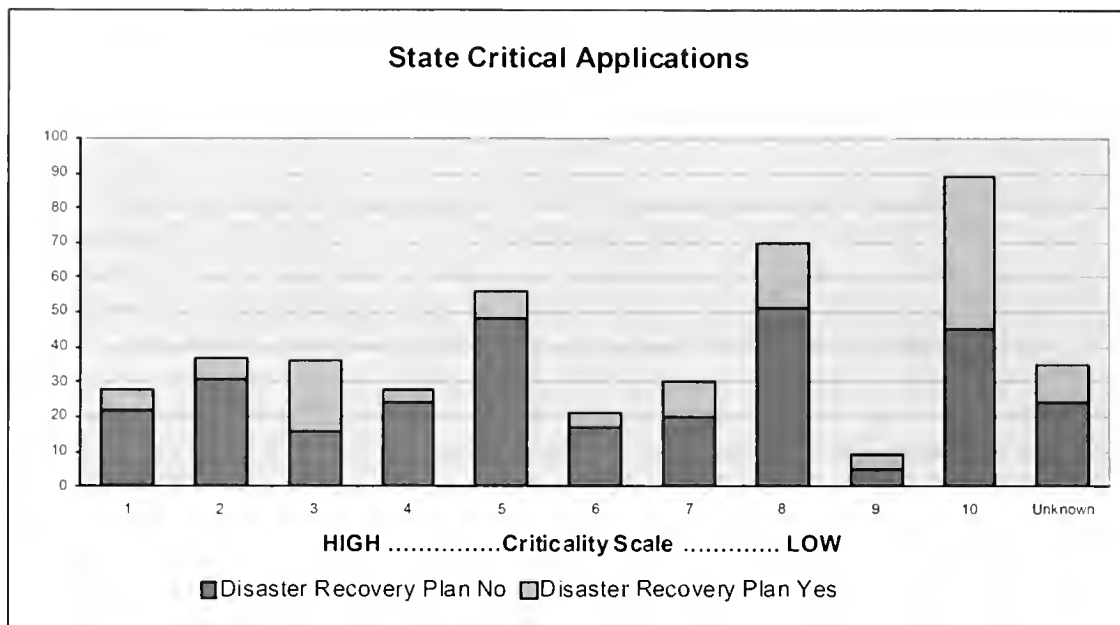
Software lifecycle is based on the type of software and hardware platform used. Any one of the following factors may require the replacement or updating of software: hardware equipment changes, operating system changes, user needs, manufacture updates, and termination of support for older versions. At a minimum, operating system software upgrades should be timed to coincide with normal hardware replacement or when application/middleware is undergoing a major upgrade.

In the future, all agencies need to consider addressing lifecycle management of their software applications in their agency IT plans.



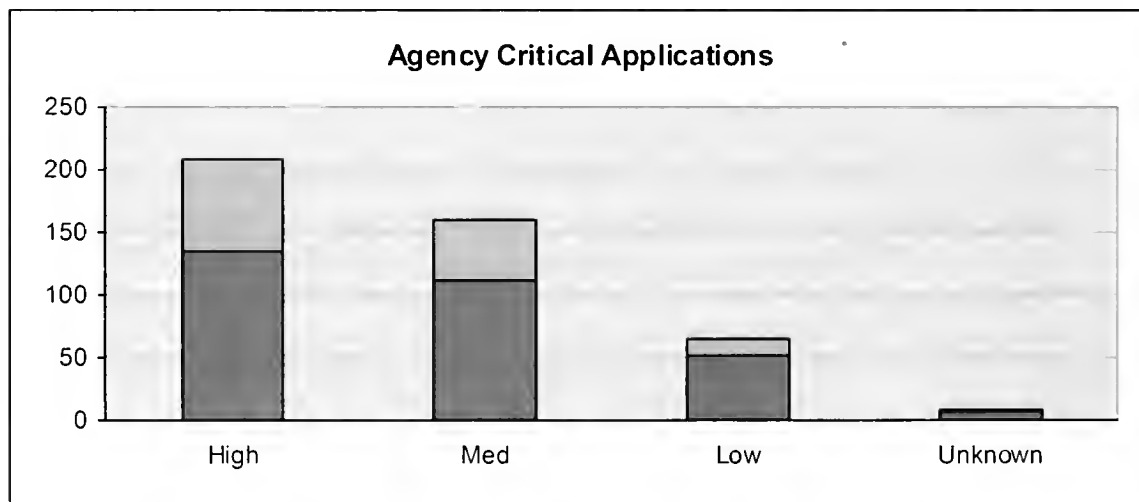
*Figure 9 illustrates applications by type and by age.*

Applications were also rated for their level of criticality to the continued operation of state businesses. The agencies were asked to indicate whether the application has a disaster recovery plan in place. Nearly 68 percent of all applications *do not* have a disaster recovery plan, 69 of which are highly critical to state operations. Agencies have made progress in reducing the number of critical applications that do not have a disaster recovery plan.



*Figure 10 illustrates applications critical to state operations with an indication of the status of their recovery plan.*

The applications were also rated for their level of criticality to the continued operation of the agency business. A scale of high, medium, or low was used. Approximately 31 percent of the applications rated as highly critical to agency operation *do not* have a disaster recovery plan.



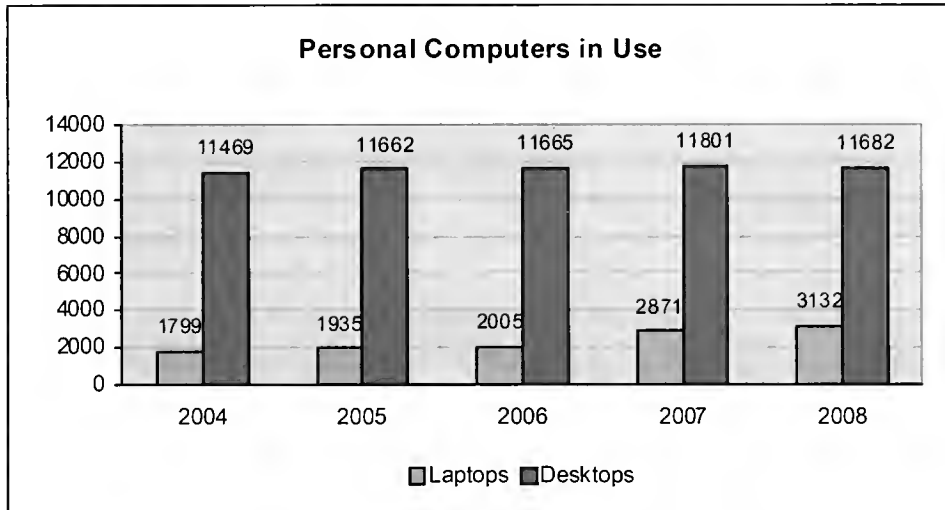
*Figure 11 illustrates the agency rating, along with the status of the disaster recovery plan.*

### **Desktop Computers**

Montana currently has 14,814 personal computers<sup>11</sup> in service, with 3,132 or 21.1 percent of those being laptop computers, and the remainder being desktop computers. There has been an 8 percent increase in the number of personal computers from FY06 to FY08. The state's PC-standard is based on IBM and IBM-compatible equipment and selected software. The state has a

<sup>11</sup> The distinguishing characteristics are that one person primarily uses the computer, interactively, at a time.

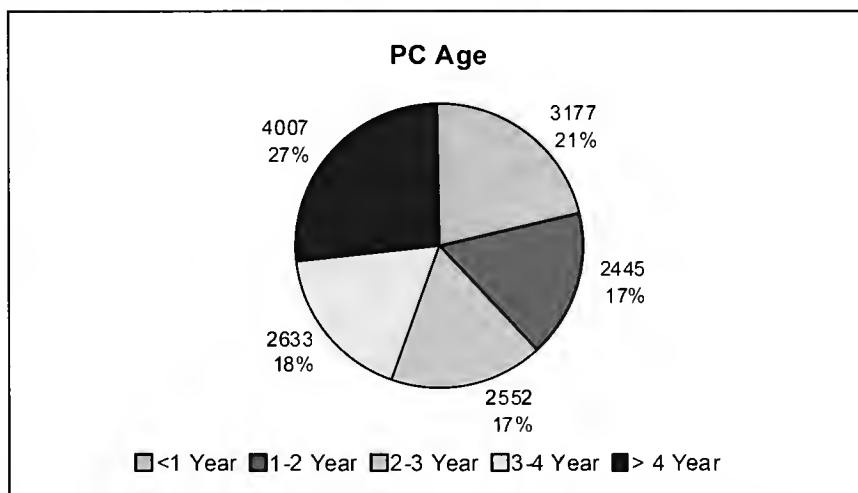
term contract with IBM, Dell, and HP for PC acquisitions. While there has only been a moderate growth in the number of PCs, the number of laptops is increasing while the overall number of desktop PC's remained level during FY07 and FY08. The state's policy for PC replacement is once every four years, which is consistent with industry and government practices. The actual PC replacement rate for FY07 and FY08 averaged 19 percent for desktop computers and 20 percent for laptop computers, which does not quite meet the standard of 25 percent per year.



*Figure 12 illustrates how the number of personal computers in use by the state has increased over time.*

Agencies will need to replace a minimum of 6,640 personal computers within the next biennium in order to maintain the state's policy for PC replacement of once every four years. At an approximate cost of \$1,200 per unit, the projected investment will be \$7.9 million. Most agencies have not adhered to the 25 percent a year replacement schedule and will therefore require a larger capital expenditure in order to become current with state policy.

We can expect to see changes in programs like Microsoft Office 2007. The state will be faced with evaluating upgrades and enterprise compatibility issues.



*Figure 13 illustrates the distribution of personal computers by age.*

## Mainframe Computing Environment

The state has operated a centralized mainframe computer for many years. The state currently operates an IBM zSeries z9 Mainframe. In recent years, agencies' demand for mainframe computing services has declined as they have turned to a mid-tier computing environment for application processing and delivery of web eGovernment services. This movement is consistent with nation-wide trends. Currently, nearly 90 percent of the workload on the state's mainframe computer comes from three agencies. ITSD is currently investigating the use of the Mainframe virtualization ability to host mid-tier Linux servers. However, as agencies plan to migrate their applications to a mid-tier environment, the state must develop a strategy for managing this migration, including a plan to finance the continuing mainframe operations and IT staffing support.

## Mid-Tier Computing Environment

Mid-Tier computers are generally much smaller than traditional mainframe computers and larger than "personal computers." These systems rely on the UNIX, Windows, and Linux operating systems. The vast majority of applications developed in the past ten years have been aimed at the mid-tier platform. Mid-tier has become the predominant platform for database services, application processing, and web services.

## Telecommunications Network Infrastructure

SummitNet II is the integrated voice, data, and video network used by government agencies, University System, libraries, local governments, and K-12 educational institutions. Multiple telecommunications carriers throughout the state provide SummitNet II. High-speed ATM<sup>12</sup> switches located in many of the larger Montana urban areas connect their respective communities and university campuses together. Additionally, VisionNet has deployed ATM switches in additional communities not supported by Qwest via their independent network of telephone service providers.

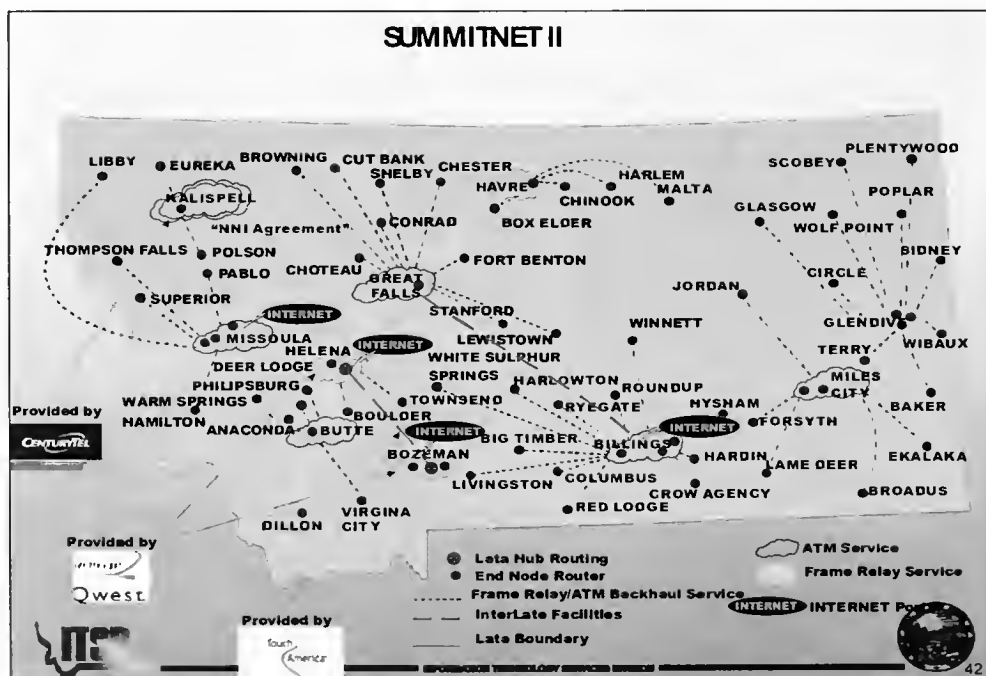


Figure 14 illustrates the Areas Served by SummitNet II

<sup>12</sup> In electronic digital data transmission systems, the network protocol Asynchronous Transmission Mode (ATM) encodes data traffic into small fixed-sized cells.

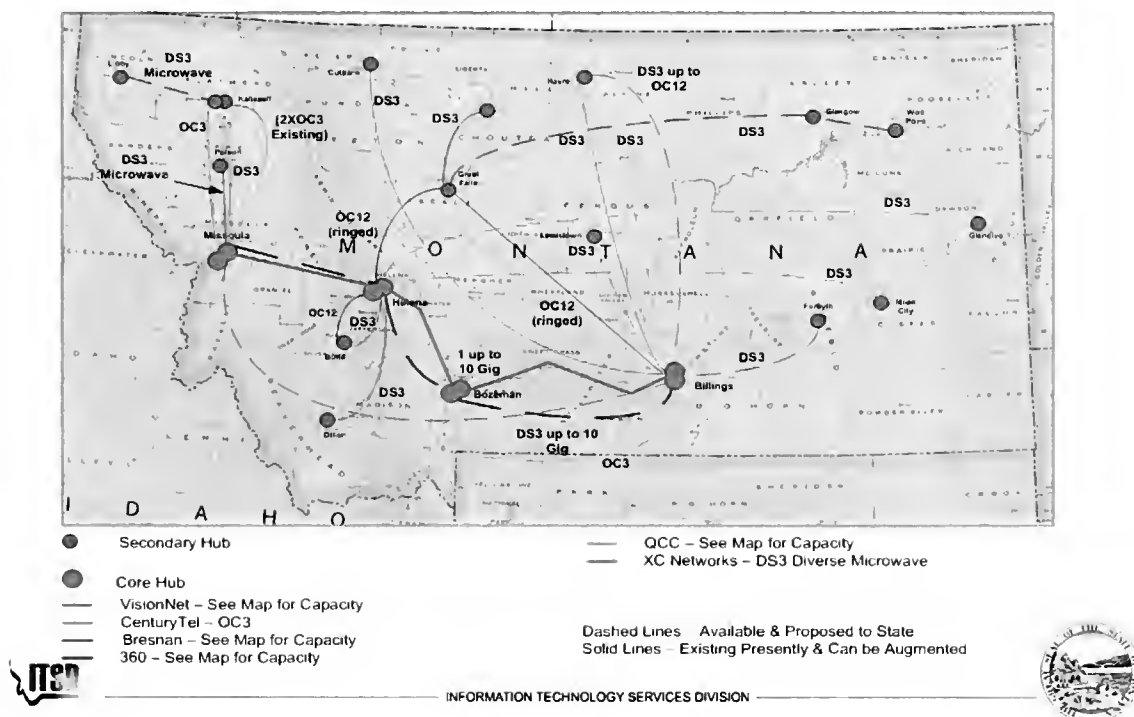


There are two high-speed connections between the Helena Capital Complex and the state's major telecommunications carriers, Qwest and VisionNet. ITSD is responsible for the acquisition and operation of the state's voice, video and data network. SummitNet connects more than 500 state offices and university campuses located in 145 communities throughout the state.

An RFP for statewide transport services was released on 09/28/2007. Bresnan Communications was found to be the most responsive vendor in this RFP and a contract was signed with Bresnan communications on 04/01/2008. The State and Bresnan communications are in the process of moving more than 100 sites over to this new converged network. Today this network has a core between Missoula, Helena, Bozeman and Billings. This core is currently operating at 1 Gb and provides both redundancy and diversity to minimize the possibility for failure to this critical resource. In addition to the core, there are 15 Bresnan aggregation points throughout the State.

## Bresnan Aggregation Locations

Leased Circuit Partners - Hub Primary and Diverse Carrier Connections



*Figure 16 illustrates the Bresnan Aggregation location*

Following industry supported best practices, this new MPLS<sup>13</sup> converged network ensures quality of service (QOS) to support multiple network technologies including voice, video, and data over a single network connection. This new network and its state-of-the-art evolving capabilities allows for separation of traffic. This provides the state the flexibility to support ongoing security requirements, if necessary.

<sup>13</sup> **Multi Protocol Label Switching (MPLS)** is a data-carrying mechanism that belongs to the family of packet-switched networks.

## **Voice**

On the voice side of the network, 37 Private Branch eXchanges (PBX) and 246 smaller key systems connect to SummitNet II to provide traditional voice services for the state Voice PBX and key systems. PBX servers have a much longer life than data servers. Some have been used for more than 20 years. Individual components and software are upgraded within the same chassis. Features and functionality of newer systems including Voice over Internet Protocol (VoIP) are widely deployed and the costs are dropping. VoIP allows the transfer of voice traffic over lines that are typically used for data traffic and does not require dedicated PBX's at the remote locations. The Internet is currently carrying voice traffic through VoIP. Proper planning based on accepted standards should ensure the state's continued success in its use of its telecommunications infrastructure to reach across Montana.

## **Data (Internet Access)**

Up until January of 2002, the state's Internet use grew at a modest but steady rate. By July of 2003, the growth started to accelerate, more than doubling by FY06. The acceleration has continued through the 07/08 biennium. This growth mirrors the growth in Montana's eGovernment services as well as a greater dependence on the Internet as a means of conducting research, communicating, and an increase in the amount of electronic data being sent to citizens, federal agencies, and private companies. Use of the Internet as a key strategic communications vehicle will continue to fuel its rapid growth. This trend is not expected to change in the foreseeable future. Because the Internet is becoming such an integral part of everyday business in every state agency, a second Internet access point in Billings was added as a backup in case the primary link fails.

## **Video**

The Montana Educational Telecommunications Network (METNET) uses the national transmission standard<sup>14</sup> for video and data compliant subscription service that supports both state agencies and the university system's delivery of two-way interactive distance learning, hearings, and meetings. The system uses the SummitNet II infrastructure to connect 16 conference facilities in 13 cities across Montana.

There is an increasing emphasis on the use of network and computing services to support the administrative and business needs of the state, IT employees, citizens, and businesses. There is an increased demand of video, audio, and high definition graphics. The state needs to invest in infrastructure and support services if it is to meet the changing expectations of those accessing government services and information.

Investments in transport services, management tools, supporting infrastructure, and people will need to be made to update the current IT support structure in order to meet the increasing demand being placed on the network.

## **Data Storage Environment**

Data storage demand has grown dramatically in recent years. ITSD and agencies are using Storage Area Network (SAN)<sup>15</sup> technology to ease the administrative burden, share files across multiple servers, and provide advanced storage features. Recent improvements in the Capitol Complex Network make it possible to centralize agency storage to realize increased economies of scale.

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<sup>14</sup> H.320 and H.323

<sup>15</sup> A storage Area Network (SAN) is architecture to attach remote computer storage devices (such as disk arrays, tape libraries, and optical jukeboxes) to servers in such a way that the devices appear as locally attached to the operating system.

## **IT Staffing**

The Legislative, Judicial, and Executive branches currently employ approximately 850 staff to support their IT systems. The University System is not included in this total. Overall, the state has 6.3 % of all employees specializing in supporting the IT infrastructure. InfoTech's<sup>16</sup> FY07-FY08 IT Budget and Staffing report found that the average for all state/provincial governments was 6%.

Montana continues to rely heavily on outside contractors. The equivalent of 260 IT FTEs are being employed by agencies through contracting; a 17% increase over the last two years. Other states average only 6% percent of all IT expenditures on IT contractors, while Montana spends roughly 25%. Recruitment of IT professionals with the necessary IT skills is the largest staffing problem identified by agencies. Security officers, project managers, and programmer analysts are the areas of biggest need. Agency managers also identified problems with agency pay scales too low to attract outside candidates.

## **Major Information Technology Projects**

Major IT projects for Montana are primarily defined as projects requiring a minimum of \$500,000 in funding over the upcoming biennium. The funding can come from a variety of sources, including state funds, federal funds, and user fees. Agency<sup>17</sup> plans for major IT projects for the next biennium include the following:

• DoLI: Licensing Standard System	\$ 2.25M
• DoLI: UI Tax Modernization	\$19.8M
• DoLI: Building Standards System	\$ 2.4M
• DPHHS: Medicaid Management System (MMIS)	\$66.0M
• DoA: ESSC Relocation and Equipment	\$ 3.5M
• DoA: Interoperability Montana (IM)	\$ 2.0M
• DoR: Improve Efficiency through Imaging Technology	\$ 3.4M
• Leg: TVMT Consolidation	\$ 1.2M
• MDT: Variable Message Signs	\$ 0.95M
• DoA: High Performance Computing Operations	\$ 2.0M
• DoA: MT Land Info Grants	\$ 1.9M
• DPHHS: MTAP New Technology	<u>\$ 1.6M</u>
<b>TOTAL:</b>	<b><u>\$107M</u></b>

State of Montana Project Management Methodology: The state IT enterprise has adopted a project management methodology based on guidelines from the Project Management Body of Knowledge (PMBOK) and the Information Technology Infrastructure Library (ITIL). The objective of this methodology is to provide common standards to ensure that IT projects are conducted in a disciplined, well-managed, and consistent manner in order for state IT projects to be completed on time and within budget. The newly established Project Management Office (PMO), working together with representatives from server state agencies, has developed a State of Montana Project Management Guidebook to assist agencies with conducting their IT projects. This effort is in keeping with the state goal to Develop IT Resources in an Organized, Deliberative, and Cost-Effective Manner and objective to Implement Best Practices.

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<sup>16</sup> InfoTech is a research group that provides research tools and actionable advice to Optimize IT

<sup>17</sup> Department of Labor and Industry (DoLI), Department of Health and Human Services (DPHHS), Department of Administration (DoA), Department of Revenue (DoR), State Legislature (Leg), Department of Transportation (MDT)

## **Other IT Issues**

### **Cell Phones**

The Legislative Audit Division issued an audit in December 2005 (Audit 05S-30 – State Use of Cellular Devices) that found several problems with the use of cell phones by state employees. The audit found that there was no policy specific to cellular devices, resulting in inconsistent use of cellular phones and cell phone business agreements. The audit also found that procedures needed to be established for cellular device statements to assess additional charges as usage overages or billing errors. The audit recommended that the Department of Administration publish a statewide policy designed to address the findings and bring consistency to use of cell phones and that the DOA work with state agency personnel to recover monetary losses for overcharges of federal excise tax and in-state roaming.

The statewide policy was published in July 2006 to address the findings of the audit. DOA/ITSD worked with state agencies to ensure that appropriate credits were made for billing overcharges. The policy remains in effect today.

DOA review of the policy is pending clarification of federal rules on expense reimbursement. These rules are currently under review at the federal congressional level. The intent of current legislation is to allow personal use without reimbursement due to changes in technology.

### **District Boundaries**

Boundaries are important because they define the rights and interests on the land. For this reason it is essential to ensure that boundaries are accurately drawn and recorded, especially boundaries for any government sanctioned entity (e.g., Water & Sewer District). HB49-Governmental Unit/District Boundaries Clean-Up is legislation to improve data reporting and information quality for governmental unit boundaries.

ITSD has supported the Education and Local Government (ELG) Legislative sub-committee that drafted and submitted the proposed changes. ITSD will discuss adding language to have the legal description reviewed by the County Surveyor before it is submitted to the Clerk & Recorder, DOR, and the BMSC. ITSD also supports the legislation, especially the Housekeeping bill, in the Legislature.

### **Email Discovery and Archiving**

In December 2006, the Federal Rules of Civil Procedure were amended to require that electronic documents used in federal court proceedings be treated the same as paper documents. The Montana Rules of Appellate Procedure were subsequently updated in October 2007.

The state does not have an effective and efficient archival system in place for email records and must rely on its disaster recovery tapes to satisfy e-discovery requests. This poses potentially significant legal risk for the state. A large volume of unintended records are being retained, opening the door to additional potential e-discovery and liability. Approximately 700 of the oldest backup tapes are from hardware, software, and media that are obsolete and are no longer in use. Our ability to restore these records is questionable. The public and press have objected to the cost of restores as being prohibitive and may decide to take action against that. Transparency of government and access to records may become key topics of the upcoming or future legislative sessions.

To mitigate these risks ITSD prepared budget requests for the previous and current legislative sessions to obtain funding for an email archival system. These requests did not advance due to the high cost (\$1.4M per biennium) and lack of general awareness of this problem. ITSD has coordinated with DOA legal counsel to create a legal review board to review email hold requests.

We have also raised awareness of this issue by presenting at the December 2007 CLE Conference attended by most state agency attorneys. We will continue to raise awareness of the problem through IT, legal, and executive channels. We will also continue investigating potential solutions, particularly incremental steps that could be taken to lower costs.

### **Games on PCs**

Many desktop computers are purchased with the operating system already installed on them. A number of games come included with the Windows operating system, the most widespread desktop computer operating system. These games include Internet-based games that create potential risk for game players. This means games reside on the PC until removed by a technician.

There are easy options for ensuring games are removed from computers or are unavailable for use. This is actually a Human Resource issue, not an IT issue. The issue is employee time management and use of state resources, not whether or not games are installed on a computer.

State policy (ENT-SEC-081 – User Responsibility) states, “State computing resources are not to be used for non-state-related activities (including games or software that is not required for an employee’s job responsibilities).” The Governor’s Office has directed executive branch agencies to comply with the state policy by having technical staff remove the ability to play games.

### **Personal Computer (PC) and Electronic Equipment Disposal**

The State of Montana has a 4-year replacement cycle for PCs. A PC includes a Central Processing Unit (CPU), monitor, keyboard, and mouse. Other PC peripherals and office equipment, such as printers, keypads, external hard drives, modems, tape backup units, servers, typewriters, CD towers, etc., are also replaced as needed.

Many landfills are no longer accepting PCs and other electronic equipment for disposal. State agencies need to know how to dispose of aging electronic equipment. Procedures and definitions pertaining to Disposal of PCs are listed in state policy ENT-SEC-141 – Disposal of Computers.

All removable storage media must be physically destroyed. Agency directors are responsible for maintaining documentation on all electronic data storage devices (e.g., PCs, laptops, servers, PDAs) that have been either destroyed or sanitized. These records must be retained by the agency for two years.

All computer storage devices must be sanitized or defragmented prior to disposal, regardless of where the agency chooses to dispose of them. All agency data and software programs must be removed from the hard drive prior to its disposal or, alternatively, the hard drive must be destroyed. Agencies disposing of equipment through the Property and Supply Bureau’s Surplus Equipment program or by donating their surplus functional equipment to the Office of Public Instruction should contact these entities for a copy of their additional requirements

### **Privacy Protections for State Databases**

Databases are key technical components of most software applications. These databases can contain highly sensitive information, including personally identifiable information of citizens. To accomplish the dual charge of appropriately and cost-effectively protecting that information while enabling business to serve their customers as efficiently as possible requires a holistic, comprehensive risk based approach to information system, (IS) security.

Presently, statewide IS security policies are in various stages of draft and review. These IS security policies, based on the National Institute of Technology and Standards<sup>18</sup> (NIST) framework, will establish the minimum requirements for IS security statewide.

The Enterprise IS Security Bureau of ITSD is meeting with the information security managers and IT managers of the various agencies to coordinate and facilitate the development of formal IS risk management procedures within the agencies. These procedures will culminate in the delivery of appropriate, cost effective security controls for the agencies' information systems, including their databases.

Strategic IS security planning is being conducted by the state CIO for the development of a formal IS security awareness, training, and education program statewide that is tied into and coordinated with state HR and workforce development so that the state's IS security capability can be tracked and monitored.

### **Montana Base Map Service Center (BMSC)**

The BMSC proposal provides geospatial products and services to the Geographic Information Systems (GIS) federated enterprise, including championing and managing those Montana base map layers that are inherently multi-jurisdictional (e.g., cadastral and government unit boundaries) and/or multi-faceted (transportation – federal highways, state, county and Forest Service roads, trails, etc.).

The role of the BMSC is to ensure that the decentralized information held by the numerous federation members is locatable and retrievable in the most efficient and effective manner possible, and that access is afforded to the broadest audience possible. Additionally, it will make certain that the decentralized federation supports information access and data providers, equally, set standards and policies that support the exchange of information between federation partners, and promote mutually-beneficial, collaborative efforts at/between state agencies, local governments, tribes, federal partners, the public and private sector organizations. It will be the primary promoter of geospatial data and tools within and across public organizations.

Funding for Montana Land Information Act (MLIA) coordination will continue to be through the MLIA account

### **Software Asset Management (SAM)**

A recent audit revealed a serious deficiency in ITSD's ability to monitor and manage software usage across the division and statewide. Additionally, software publishers are increasing the frequency of audits to ensure compliance with Sarbanes-Oxley corporate asset accounting requirements<sup>19</sup> and as a means of increasing revenues. Watchdog groups such as the Business Software Association and the Software Information Industry Association actually pay rewards for information regarding software misuse and piracy.

ITSD developed a policy and an accompanying ITSD procedure for purchase of software and license management. SAM activities will be reported to the oversight groups at their regularly scheduled meetings. ITSD's 120+ software contracts are being reviewed for compliance with contract terms and conditions. ITSD Procurement and Contract Management Bureau will meet at least annually with all ITSD's bureaus to review all software agreements. ITSD will initiate a

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<sup>18</sup> Founded in 1901, NIST is a non-regulatory federal agency within the U.S. Department of Commerce. NIST's mission is to promote U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology in ways that enhance economic security and improve our quality of life.

<sup>19</sup> The Sarbanes-Oxley act of 2002 set strict rules to ensure accurate financial reporting, reduce fraud and mismanagement.

project to acquire Software License Management software and have it in place by April 2009. This is not just an ITSD problem, but one that impacts all agencies. ITSD is taking the leading role with SAM and has converted an existing position to monitor licenses throughout all executive agencies for license compliance.

## NOTES



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